What is claimed:

1. A composition of matter comprising: an aqueous solution of at least one polyaluminum compound selected from the group comprising the compounds of polyaluminum ferrisulfate, polyaluminum ferrisulfate chloride, polyaluminum ferrichloride, where the aqueous solution also contains the following dissolved substances:

0.2 to 7 weight parts magnesium, calcium, or magnesium and calcium in the form of a compound that forms a neutral or acid anion; and

0.3 to 10 weight parts of one or more organic, water-soluble polymeric flocculants selected from the group comprising the polyamines, polydiallyldimethylammonium chloride (polyDADMAC), polyethylenimine acetates, or polyethylenimines, where the weight parts are based on 100 weight parts of the composition.

2. The composition of matter of claim 1, wherein the polyaluminum compound is selected from at least one of polyaluminum chloride, polyaluminum sulfate, polyaluminum sulfate chloride, or polyaluminum sulfate silicate.

3. The composition of matter of claim 2, wherein the polyaluminum compound is polyaluminum chloride.

4. The composition of claim 1 having 0.2 to 7 weight parts magnesium chloride, calcium chloride, or magnesium chloride and calcium chloride.

5. The composition of matter of claim 1 wherein said composition does not contain any calcium.

6. The composition of matter of claim 5, wherein said composition contains 10 to 12 weight parts magnesium and 20 to 25 weight parts organic flocculent, based on 100 weight parts aluminum.

7. The composition of matter of claim 1, wherein said composition contains as an organic flocculent at least two different quaternary polyamines having different molecular weights, different viscosities, or different molecular weights and different viscosities.

8. The composition of matter of claim 1, wherein said composition contains as an organic flocculent at least one quaternary polyamine and polyDADMAC.

9. The composition of matter of claim 1, wherein said composition contains the following amounts of dissolved substances per 100 g of the composition of matter:

7.0 to 9.5 g aluminum in the form of polyaluminum chloride;

0.1 to 1.3 g magnesium in the form of magnesium chloride; and

0.3 to 4.5 g organic flocculent.

10. The composition of matter of claim 9, wherein said composition contains the following amounts of dissolved substances per 100 g of the composition of matter:

7.5 to 8 g, aluminum in the form of polyaluminum chloride;

0.75 to 1.0 g magnesium in the form of magnesium chloride; and

1.5 to 2.0 g, organic flocculent.

11. The composition of matter of claim 6, wherein said composition contains the following organic flocculants, based on 100 g of the composition:

0.1 to 1.3 g of a first polyamine;

0.1 to 1.6 g of a second polyamine; and

0.1 to 1.3 g polyDADMAC.

12. The composition of matter of claim 11, wherein said composition contains the following organic flocculants, based on 100 g of the composition:

0.5 to 0.6 g, of a first polyamine;

0.6 to 0.7 g, of a second polyamine; and

0.5 to 0.6 g, polyDADMAC.

13. The composition of matter of claim 1, wherein the polyaluminum compound has an oligomerization in the weight percentage ranges of;

10% to 30% monomer;

20% to 90% oligomer; and

10% to 40% polymer.

14. A method of treating wastewater comprising:

preparing a composition of matter comprising,

an aqueous solution of at least one polyaluminum compound selected from the group comprising the compounds of polyaluminum ferrisulfate, polyaluminum ferrisulfate chloride, polyaluminum ferrichloride, said aqueous solution also contains the following dissolved substances:

0.2 to 7 weight parts magnesium, calcium, or magnesium and calcium in the form of a compound that forms a neutral or acid anion;

0.3 to 10 weight parts of one or more organic, water-soluble polymeric flocculants, wherein the water-soluble polymeric flocculants is selected from the group comprising the polyamines, polydiallyldimethylammonium chloride (polyDADMAC), polyethylenimine acetates, or polyethylenimines, where the weight parts are based on 100 weight parts of the composition; and

adding an amount of the composition of matter to the wastewater.

15. The method of treating wastewater in claim 14, wherein the composition of matter is added in the range of about 5 to 30 ml per cubic meter of wastewater.

16. The method of treating wastewater in claim 15, wherein the composition of matter is added in the range of about 5 to 15ml per cubic meter of wastewater.

17. The method of treating wastewater in claim 14, wherein the addition of the composition takes place in a wastewater feed leading to an activation basin of a biological wastewater treatment plant.